

ORIGINAL
FILE

RECEIVED

JAN - 7 1993

Before The
FEDERAL COMMUNICATIONS COMMISSION
Washington, D.C. 20554

FEDERAL COMMUNICATIONS COMMISSION
OFFICE OF THE SECRETARY

In the Matter of)	
)	
Amendment of the Commission's)	Gen. Docket No. 90-314
Rules to Establish a New)	ET Docket No. 92-100
Personal Communications)	
Service)	RM-7140 et al.

To: The Commission

REPLY COMMENTS OF
CITY UTILITIES OF SPRINGFIELD, MISSOURI

By: W. Randolph Young

1050 17th St., N.W.
Suite 1200
Washington, D.C. 20036
(202) 785-8980

Its attorney

January 8, 1993

No. of Copies rec'd
List A B C D E

0411

TABLE OF CONTENTS

	<u>Page</u>
Summary	ii
Introduction	1
Reply Comments	
1. Without A Reservation Or Set-Aside Special Needs Will Not Be Met	2
2. Any Set Asides Should Be Carefully Considered To Accomplish Defined Public Interest Goals.	4
3. A Utility Set Aside Would Provide Substantial And Definable Public Benefits And Goals.	5
a. More Efficient Utility Operations Are An Important National Priority.	5
b. Utilities Are Hampered In Meeting National Priorities By Inadequate Communications	6
c. PCS Has Substantial Potential To Solve Many Of These Communications Deficiencies	9
d. Other Comments In This Proceeding Support The Need For A Special Allocation.	11
Summary and Conclusion	13

SUMMARY

With the extraordinarily large number of comments filed in this proceeding focusing primarily on the central issues, such as the amount of spectrum to be allowed to each licensee, the size of the service areas, and whether LECs or cellular licensees will be eligible for PCS licenses, the Commission may be distracted from other issues that are not central to its initial proposal, such as a utility set aside as sought by City Utilities.

The City Utilities set aside proposal is not a transparent, self-serving device to gain an advantage for utilities vis a vis other potential PCS applicants. Rather, it is a serious proposal based on City Utilities' belief that PCS has major potential to solve some of the current problems and challenges that utilities are facing, a belief which will be backed-up by a substantial commitment to seek authority, initially on an experiential basis, to develop a PCS system tailored to meet special utility needs. The Commission is urged to consider such a set aside in light of the national purposes and priorities to be served and the identified special communications needs of utilities, especially power utilities, which are currently not now being adequately met.

Without such a set aside, utilities will not have the practical opportunity to test, develop and operate the PCS facilities that have strong potential to significantly improve the efficiency of utility operations in furtherance of national goals and the public interest.

RECEIVED

JAN - 7 1993

FEDERAL COMMUNICATIONS COMMISSION
OFFICE OF THE SECRETARY

Before The
FEDERAL COMMUNICATIONS COMMISSION
Washington, D.C. 20554

In the Matter of)	
)	
Amendment of the Commission's)	Gen. Docket No. 90-314
Rules to Establish a New)	ET Docket No. 92-100
Personal Communications)	
Service)	RM-7140 et al.

To: The Commission

REPLY COMMENTS OF
CITY UTILITIES OF SPRINGFIELD

City Utilities of Springfield, a municipal utility under the jurisdiction of the Board of Public Utilities of Springfield, Missouri ("City Utilities"), by its attorney, hereby files its reply comments in the above captioned proceeding in response to the Commission's Notice of Proposed Rule Making and Tentative Decision released August 14, 1992 ("Notice"), stating as follows:

Introduction

In its Notice the Commission proposed to allocate various band segments for PCS in the 900 MHz and 2 GHz bands. It sought comment on these and various other issues, such as the service areas for PCS licensing, the method for choosing among competing applicants, and the eligibility for PCS by cellular licensees and local exchange carriers ("LECs"). Relative to the latter, the Commission suggested the possibility of allowing an LEC to acquire a smaller 10 MHz block, either by adding an additional 10 MHz to the PCS allocation or allowing the subdivision of a block.

In its comments filed on November 9, 1992 City Utilities supported the establishment of PCS without taking a position on

the exact frequency bands to be allocated to the service. Its primary thrust was to urge the Commission to set aside a minimum 10 MHz allocation in the 2 GHz range for utility use in recognition of the potential of PCS to solve the special communications needs of utilities and the fact that without a set aside the practical opportunity for utility licensing would be nil given the great number of applications the Commission is likely to receive once it begins to accept applications for regular PCS licenses.

Reply Comments

1. Without A Reservation Or Set-Aside
Special Needs Will Not Be Met.

In response to the Commission's Notice more than 150 substantive formal comments were filed. For the most part these commenters focused primarily on the amount of spectrum to be assigned to each licensee, the size of the license areas, and whether telephone and cellular entities should be eligible for PCS licensing within their service areas. There was a wide range of positions on these critical issues. The majority of commenters seemed to support at least three licensees in service areas comparable to those used for cellular with a minimum of 20 MHz each. There was, however, significant support for each licensee having wider bandwidths, 30 and 40 MHz being the most popular, at the expense of either fewer licensees or the allocation of additional spectrum.

These issues are, of course, extremely important and it is only logical that the Commission should focus most of its

attention on them. Nonetheless, the number of commenters and the sheer volume of comments filed with the FCC, more than 6,400 pages, the vast majority of which are directed to these central issues, suggest that the Commission and its staff will be tempted to ignore the issues raised by a few commenters such as City Utilities that seemingly focus on peripheral matters, particularly the special uses of which PCS is capable. But if the Commission ignores these uses, they will be lost in the stampede to license and construct PCS facilities to provide the general public another mobile service.

As public broadcasting was established to meet minority and special needs not likely to be satisfied by the mass audience focus of commercial broadcasting, the Commission needs to ensure that minority needs are not crushed in a pell mell rush to establish PCS as a mass mobile service. For the same reasons that the Commission reserved frequencies for educational and public broadcasting and for utilities relative to multiple address system ("MAS") spectrum,¹ it needs to reserve a small part of the PCS allocation to provide an opportunity for the development of new and innovative services that will never have the mass market applicability of another cellular-type service but nonetheless can flourish given the proper regulatory environment and serve important public interests.

¹ See Report and Order in PR Docket No. 87-5, 3 FCC Rcd 1564, 1567 (1988).

2. Any Set Asides Should Be Carefully Considered To Accomplish Defined Public Interest Goals.

It is obvious that the Commission should, and no doubt will, reject any call for a frequency set aside or reservation that accomplishes nothing more than promoting the commercial interests of any class of potential users by virtually assuring them of access to PCS frequencies. By the same token the Commission should reject the contrary view that any set aside is undemocratic and unworthy of serious consideration. Rather, given the constraints of the availability of radio spectrum the Commission should carefully consider any legitimate public needs and the goals that a set aside is likely to achieve. Once these public interest considerations and goals have been defined, the need and justification for a set aside becomes more obvious.

The only possible set aside suggested in the Commission's Notice was a 10 MHz block for LECs. However, as pointed out in City Utilities' comments, the reasons justifying such a set aside were vague and unspecific. Perhaps because of this there was relatively little substantive comment on that proposal other than the predicable endorsement by many telephone companies and opposition by their competitors or potential competitors who see such a set aside as simply enhancing the market power of LECs. Significantly, there was little or no rationale offered in the comments that would justify such a set aside in terms of defined public benefits.

City Utilities does not oppose a set aside for LECs. However, it does recognize that as a practical matter the

Commission is unlikely to grant multiple set asides, especially at the cost of reducing the amount of spectrum available for services that will serve the mass public to an uneconomic or non-competitive level. If indeed that is the case, City Utilities urges the Commission to consider the relative merits of the various cases for set asides and base its determination in this regard on the basis of defined public benefits and goals.

3. A Utility Set Aside Would Provide Substantial And Definable Public Benefits And Goals.

The best way of defining public benefits and goals that could be achieved through a set aside would be to identify the special needs that could be satisfied and their relative importance in terms of the overall public interest.

a. More Efficient Utility Operations Are An Important National Priority.

Utilities provide much of the infrastructure which is critical to our modern civilization and our national strength and well being. Citizens take for granted that when they turn on the facet, clean fresh water will gush forth; that ample supplies of gas will be there for their cooking and heating needs on demand; and that reasonably priced electricity will always be available at the flick of a switch to meet the ever increasing demands for lighting, air conditioning, and heating and to run countless appliances. But at the same time utilities are increasingly under pressure to deliver these services in greater quantities with more efficiency in the face of tightening energy supplies and greater concerns for environmental impact. Always one of the

major users of communications, as the Commission is aware, utilities are turning more than ever to improved communications in their efforts to meet the national needs.

The Congress has recently recognized the importance of such communications. In Title IV of the recently passed Telephone Disclosure and Dispute Resolution Act Congress directed the Assistant Secretary of Energy for Conservation and Renewable Energy, in consultation with the Assistant Secretary of Commerce for Communications and Information, to develop "a proposal for demonstrating the ability of new and innovative communications equipment and services to further the national goals of conserving energy and protecting public health and safety."² Among the factors to be addressed in such a demonstration project are the feasibility of remote meter reading and managing and conserving the consumption of electrical energy and natural gas by residences and businesses.³

b. Utilities Are Hampered In Meeting National Priorities By Inadequate Communications.

In view of the foregoing, there is no doubt that there is a strong national purpose to be served in improving the efficiency of utility operations, particularly in the generation and use of electrical energy, and that improved communications is a necessary link in achieving that end. Perhaps the greatest

² Section 401(a).

³ The Act appears to anticipate that the demonstration project will utilize government frequencies. It does not infer, however, that such frequencies will be re-allocated to non-governmental use if the demonstration project proves successful.

current focus of power utilities nationwide is suppressing peak demand. Constructing additional generating capacity is not only expensive, typically running from \$20,000 to \$45,000 per additional megawatt of capacity,⁴ but it has major impact on the environment. One of the most popular methods employed by electrical utilities in conserving power is through demand side management (DSM).

One of the DSM tools with the greatest promise is load shedding whereby customers with non-critical needs are offered service at a reduced rate if the utility is allowed to temporarily interrupt power to certain types of appliances. In these situations devices are placed on certain appliances, such as air conditioning units and water heaters, which, upon the receipt of a radio signal from a central location, will cycle the appliances off for varying periods of time during peak usage periods. Although this technology has been available for some time, the problem has been in obtaining a reliable, cost effective communications link to the load shedding device. As indicated in City Utilities' comments, various communications links have been tried (e.g., telephone lines, cable television facilities, and subcarriers on FM broadcast stations), but they have typically proven to be less than satisfactory, either on the

⁴ Peak demand in the U.S. is projected to grow at about 1.8 percent per year between 1992 and 2001. The cost of constructing generating plant to meet peak loads is only part of the equation. Since such plants must set idle much of the year, they are typically the least efficient and involve higher operating costs.

basis of reliability or cost. Hence, despite its great potential, load shedding still is not widely employed.

As important as load shedding is in moderating peak demand, it is by no means the sole communications driven need in improving the efficiency of utility operations. Utilities critically require improved two way communications to meet the increasing demands placed on them. Greatly needed are improved telemetry, alarming and control information methods in order to more effectively monitor equipment and facilities so as to anticipate, correct, or isolate problems that may lead to a failure, destruction of equipment or even personal injury. While critical equipment and facilities have always been monitored, the advent of microprocessor technology is putting more intelligence farther out into the electric, gas and water distribution systems that should be monitored, if there were a cost effective way of establishing the necessary communications links. One of the major efforts is the installation of distribution automation which, broadly defined, is a system that permits a utility to remotely monitor, coordinate and operate distribution and transmission components from centralized locations. No such system is better than the telecommunications links that tie it together.

One of the long sought abilities, and the one with major cost savings potential, is remote meter reading. If a cost effective method of remotely reading utility meter could be developed, the annual savings to utilities would be in the

billions of dollars.⁵ Moreover, the threat of personal danger to meter readers in some neighborhoods is becoming of increasing concern to many utilities. Again, the primary problem with implementing remote meter reading on a wide scale basis is the lack of a cost effective communications link to each home and business.

c. PCS Has Substantial Potential To Solve
Many Of These Communications Deficiencies.

In each of the above areas PCS has substantial potential to be the communications link that will prove to be practical, cost effective, and a driving force to implement higher intelligent distribution systems. In its comments City Utilities specified in some detail the need of utilities, particularly electric utilities, have for extensive communications facilities and its plans for the future. As indicated in those comments, City Utilities has substantial plans, if given the opportunity, to employ PCS in connection with its backbone fiber network so as to be able to cost effectively employ the important technologies discussed above as well as substantial mobile communications requirements. Attached as an exhibit hereto is a summary of how

⁵ The average cost of meter reading is estimated at anywhere from \$.50 to \$6.00, depending on the local wage scale, the density of homes, and whether the meter is read on a regular basis or special basis (e.g., turning service on or off). If it is assumed that the average cost is \$1.00 per month per meter and there are 100 million gas and electric meters to be read separately each month, the annual cost would be \$2.4 billion. The figure would be over \$3 billion if the same number of water meters were read on a quarterly basis.

City Utilities views the technical aspects of PCS employed for utility purposes.

Just as City Utilities and numerous other utilities are installing fiber optic networks to meet their increasing demands for communications, so too must the Commission find public benefit in reserving a modest portion of the PCS spectrum so that these companies may continue their efforts to develop and use new communications technologies so as to improve the efficiency of their services and meet national goals. City Utilities and other innovative utilities have long sought a wide variety of strategies for improving DSM. PCS can play an important role in promoting load shedding technologies, a key but under-utilized DSM tool, where the savings from managing peak loads are effectively passed on to the customer. If individual households could save merely \$5 per month through the implementation of such demand side management techniques, the savings nationwide to consumers would be in the billions of dollars, not to speak of the lessened stress on the environment due to the reduction in demand for new generating capacity to meet peak demand.

Although City Utilities has in these reply comments emphasized the new and innovative uses that PCS has great potential for in energy and utility management, it should not be overlooked that PCS can simultaneously meet the substantial and growing demand that utilities have for mobile communications. These were set forth in the initial comments of City Utilities in some detail. The point to emphasize here is that while the

important new uses contemplated for PCS are generally fixed in nature, such uses will be accommodated in addition to mobile communications.

d. Other Comments In This Proceeding
Support The Need For A Special Allocation.

City Utilities is not the only voice in this proceeding supporting the need for a special allocation. The comments of the Utilities Telecommunications Council ("UTC") also addressed the special needs of utilities, citing the potential of PCS for advanced mobile data systems, DSM, distribution management, remote meter reading and automated mapping/facilities management.⁶ UTC urged the Commission to set aside 20 MHz to serve these and other special needs in a "non-commercial" spectrum block in addition to a 60 to 90 MHz block for high volume commercial operation. Such an approach would, according to UTC, maximize economies of scale for the mass market while allowing non-commercial users to develop new and innovative uses of the technology.

Such an approach has much to recommend it if access is not so opened by a loose definition of "non-commercial" that would attract a large number of applicants. If such a 20 MHz of spectrum were set aside as proposed by UTC, City Utilities urges the Commission to initially reserve 10 MHz for utility use. If it were not applied for utility related uses within a specified

⁶ See UTC comments at 21-22.

period of time, say five years, it could be made available for other non-commercial users.

Cablevision Systems Corporation was another commenter claiming special uses that would justify a set aside. Instead of an LEC set aside it argued for a cable system set aside which it claimed could be used for PCS-based two way services such as for "impulse pay-per-view and video-on-demand, in addition to meter reading, energy management, and home security."⁷ However, apart from older cable systems without two-way capability, which are largely being replaced by modern systems with such capacity at rebuild time, Cablevision fails to explain why wireless systems are needed for these cable related services. As to the non-cable related services, e.g., meter reading and energy management, there is a substantial unmet need as indicated above but cable systems have not been in a position to satisfy them.⁸ But even if PCS could be used together with cable television facilities in some situations to provide such communications links, it is not necessary, or even logical, for the cable operator to be the PCS licensee instead of the utility. Thus, the justification for a cable system set aside is not apparent. If anything, it would appear to simply "piggy-back" on the underlying need of the utility.

⁷ Cablevision comments at 17.

⁸ As pointed out in the comments of City Utilities (at 5), there have been some experimentation with telephone and cable television facilities to provide these services but they have generally been unsatisfactory.

Summary and Conclusion

In the battle over PCS spectrum the national public interest must clearly be recognized by reserving a small portion of the spectrum for utility use. Utilities have the necessary access to capital to develop these new uses of PCS given adequate time. The nation's energy utilities are currently among the largest private users of microwave communications facilities and in recent years they are, like City Utilities, introducing fiber optic technology into their communications networks. These existing communications facilities, when married to PCS and backed by adequate capital, have tremendous potential to solve many of the problems related to improving the efficiency of utility operations and serving important national interests. But without a set aside, utilities will be effectively denied access to this new technology since there is little hope they can be licensed given the expected tidal wave of applications for this service. As the Commission recognized the public importance of a utility set aside relative to MAS, it should also do so here.

For these reasons and those stated in City Utilities' comments, the Commission is urged to find that PCS has the potential to provide definitive and substantial public benefits in connection with utility operations and that, accordingly, a 10 MHz portion of the spectrum allocated for PCS should be set aside for such use.

EXHIBIT
TECHNICAL ANALYSIS OF CITY UTILITIES

EXHIBIT
TECHNICAL ANALYSIS OF CITY UTILITIES

The Commission's suggestion to set aside a segment of spectrum of 10 MHz is consistent with the requirements for a Personal Communications Service (PCS) based utility network. The attached figure illustrates the overall operation of a utility PCS system as considered by City Utilities (CU) which serves both mobile and fixed needs. Local access transceivers will be placed throughout the community wherever control and oversight of utility facilities is required. It is envisioned that the transceivers will be universal telemetry units capable of monitoring and controlling a wide range of telemetry functions. As illustrated in the figure, provisions should be included for simultaneously monitoring power, gas, water, security, and a variety of other remote telemetry functions. It is also envisioned that interface equipment will be available to serve commercial and residential customers. Additionally, a wide range of public service applications are envisioned such as control of and communications with, municipal government facilities, schools, and community service based agencies. Mobile applications involve the control of network fleets with applications such as vehicle position, security, maintenance, monitoring, and hand-held service personnel links. The individual transceivers communicate with reception points located on existing utility power poles, distribution centers, and pedestals, which would be used as sites for the installation of the local radio equipment. Connection to

concentration points linking individual receivers can be provided by a variety of communications systems which might include radio, copper conductors, and fiber-optic plant.

A backbone fiber-optic plant would be used to link the individual collection points to a control center. The control center contains oversight telemetry equipment that can monitor and control each of the transceiver locations.

The control center will be responsible for continuously monitoring each of the transceivers to ensure that the equipment is functioning properly. The control center will regularly poll each of the transceiver devices.

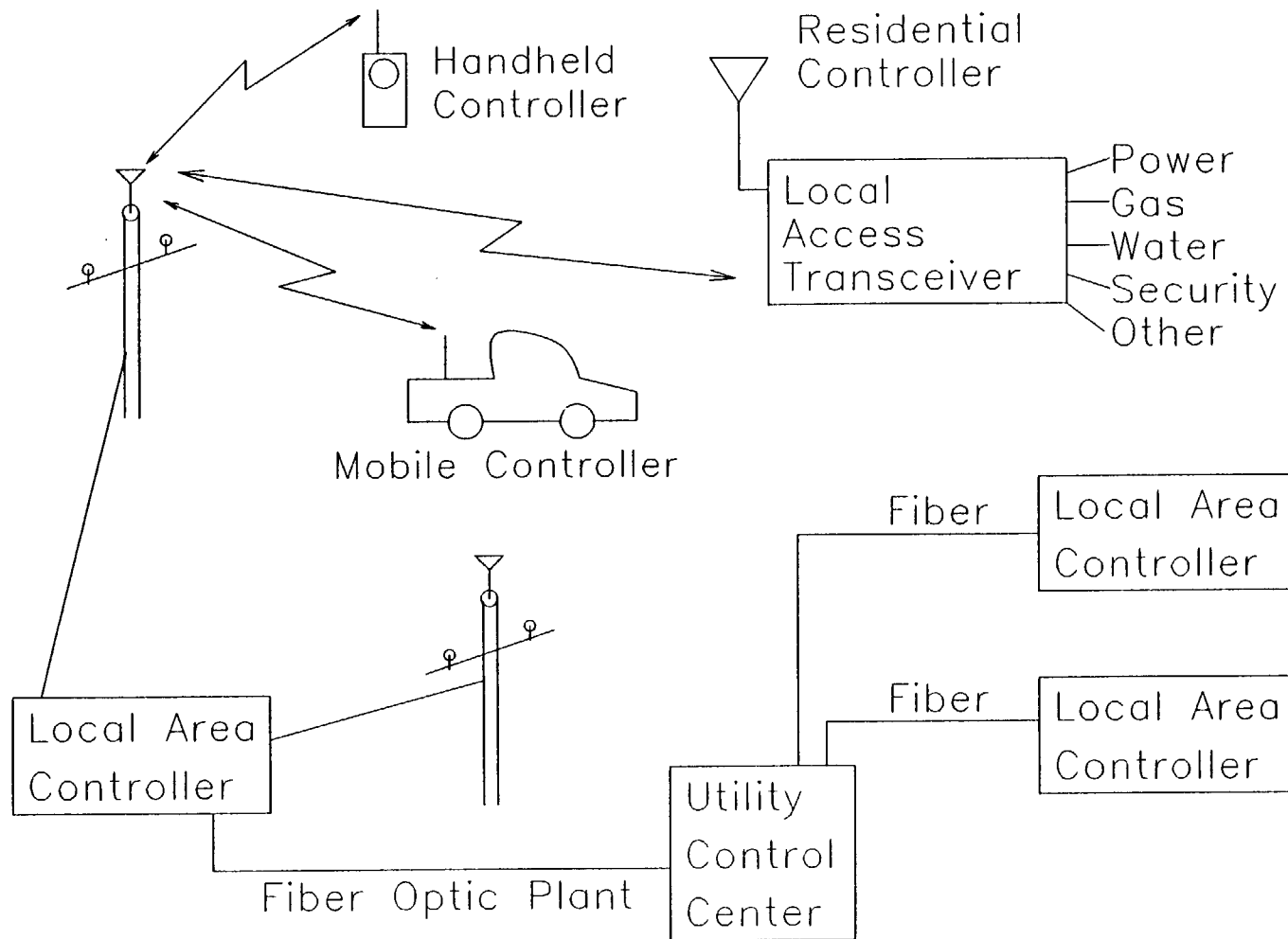
To verify operation and to check status, each transceiver must be capable of providing an alert indication to the control center in an acceptable period of time so that detected faults can be immediately corrected. For example, acceptable response times for alarms, fire, or intrusion might be in the order of several seconds after the sensing a triggering occurrence. A more rapid time response will no doubt be required for load control and power utility applications, particularly with commercial accounts.

With regard to the Commission's proposal to set aside a bandwidth of 10 MHz in the 2 GHz frequency range, both the suggested bandwidth and frequency band appear to be consistent with the overall requirements of the utility industry. By using a combination of frequency and time division multiplexing along with geographical reuse of frequencies, there will be adequate

spectrum to provide a basis for the development and implementation of a utility PCS system.

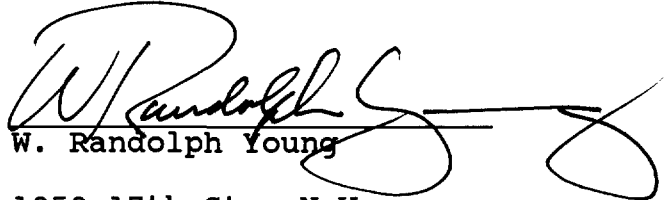
One of the key necessities to support the overall implementation is the availability of low-cost telemetry units for field installation. Sufficient bandwidth needs to be established for this service so that relatively low-cost equipment can be fabricated for the local telemetry unit. Narrow band techniques generally require increased stability and overall costs for the transceiver hardware. The allocation bandwidth suggested by the Commission appears to be a reasonable compromise for the proposed application when examined in regard to other competing applications.

Utility PCS System Overview



Respectfully submitted,
CITY UTILITIES OF SPRINGFIELD

By:


W. Randolph Young

1050 17th St., N.W.
Suite 1200
Washington, D.C. 20036
(202) 785-8980

Its attorney

Attachment

RY-2104X